

Remarks

In the present amendment, claims 1, 2, 4 and 6-10 are being amended, claims 11-13 are being added, and claims 3 and 5 are being cancelled without prejudice or disclaimer. Reconsideration and allowance of the application are respectfully requested.

The non-final Office Action dated October 29, 2007 lists the following objections and rejections: the drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include reference signs mentioned in the description; the drawings are objected to under 37 CFR 1.83(a) for allegedly failing to show every feature specified in the claims; claims 1-10 are objected to due to informalities; claims 1-10 stand rejected under 35 U.S.C. § 112(2); claims 1, 4-6 and 8-10 stand rejected under 35 U.S.C. § 102(e) over Cohen (U.S. Patent No. 6,774,015); claim 2 stands rejected under 35 U.S.C. § 103(a) over Cohen in view of Xiang (U.S. Patent Pub. 2004/0087114); claim 3 stands rejected under 35 U.S.C. § 103(a) over Cohen in view of Yu (U.S. Patent No. 6,410,371) and Fonstad (U.S. Patent No. 6,455,398); and claim 7 stands rejected under 35 U.S.C. § 103(a) over Cohen in view of Yu. Applicant traverses the various objections and rejections.

Applicant submits that the replacement drawing sheet submitted herewith fully addresses the objection to the drawings for not including a reference sign mentioned in the description. In the replacement drawing, the reference symbol IB has been added along with the referred-to arrows indicating the direction of ion beam implantation. Applicant submits that no new matter has been added since only what was already described is being indicated in the drawings. Withdrawal of the objection is requested.

Applicant disagrees with the objection to the drawings for allegedly failing to show every feature specified in the claims. It is stated in the Office Action that the recitation of "forming a strained Si layer on a substrate" from the preamble of claim 1 is not shown in the drawings. Applicant submits that the drawings show process steps used in the formation of a strained Si layer, in various embodiments resulting in the strained Si layers (9) and (9B) indicated in Figs. 7-9. As such, all of the figures involve in one way or another showing features of "forming a strained Si layer on a substrate." Moreover, Applicant submits that no argument was presented in the Office Action as to why the preamble in this case should be read as a claim limitation. The preamble of a claim,

while perhaps helpful in providing context, is only read as a claim limitation under certain circumstances. *See, e.g.*, M.P.E.P 2111.02. For these reasons, Applicant requests that the objection to the drawings be withdrawn.

Applicant submits that the present amendment renders moot the objections to claims 1-10 due to various informalities, as well as the rejections of claims 1-10 under 35 U.S.C. § 112(2). Without acquiescing, Applicant submits that the claims as amended no longer exhibit any of the recitations alleged in the Office action to be informal or unclear. Reconsideration and withdrawal of the objection and rejection is therefore requested.

Applicant submits that the § 102(e) rejection of claims 1, 4-6 and 8-10 over Cohen has been rendered moot by the present amendment. In the Office Action it is admitted that Cohen does not teach or suggest depositing a silicon dioxide capping layer on the remaining monocrystalline SiGe layer and bonding the silicon dioxide capping layer to a silicon dioxide surface layer of a second substrate, such as recited in independent claim 1. In addition, the Office Action acknowledges that Cohen does not teach or suggest patterning the layer stack that is formed of the amorphous Si layer, the amorphous SiGe layer and the remaining monocrystalline SiGe layer such as recited in new independent claim 11. For these reasons, Applicant requests reconsideration and withdrawal of the § 102(e) rejection over Cohen.

Claim 2 stands rejected under 35 U.S.C. § 103(a) over Cohen in view of Xiang. Applicant disagrees. Both claim 2 and new claim 11 recite patterning a layer stack that is formed of the amorphous Si layer, the amorphous SiGe layer and the remaining monocrystalline SiGe layer. As noted above, the Office Action concedes that Cohen fails to teach patterning, alleging that it would have been obvious to use the patterning taught by Xiang in the process of Cohen. Applicant submits that the proposed combination of Xiang with Cohen fails to teach or suggest patterning of the recited stack when the Si layer and a portion of the SiGe layer remain amorphous. The patterning disclosed by Xiang involves crystalline SiGe layers and crystalline strained Si layers. Applicant teaches that patterning the stack when the Si layer is amorphous allows the Si layer to slip on the buried silicon dioxide layer during re-crystallization while at the same time being constrained by the re-grown SiGe layer. *See, e.g.*, Applicant's paragraphs [0062] and [0063]. This produces the strained Si layer within the already-patterned stack, whereas

Xiang discloses patterning of an already-strained Si layer. Applicant therefore submits that any proposed combination of Cohen and Xiang does not teach or suggest all the elements recited in Applicant's claims.

Applicant further submits that Cohen teaches away from the proposed combination with Xiang. Xiang teaches forming a strained Si layer by growing Si on top of a crystalline SiGe layer, which results in the SiGe layer forming part of the final device. Cohen teaches forming a strained Si-on-insulator structure in a way that removes any SiGe from the final device. *See, e.g.*, Cohen's "Background of the Invention" section. As such, the Cohen and Xiang references are not properly combinable.

For at least these reasons, Applicant submits that § 103(a) over Cohen in view of Xiang is improper and should be withdrawn.

Claim 3 stands rejected under 35 U.S.C. § 103(a) over Cohen in view of Yu and Fonstad. Applicant disagrees, noting that claim 3 has been incorporated into claim 1. According to the Office Action, Yu addresses Cohen's deficiencies by disclosing a capping layer, bonding to a second substrate, and removing the support layer of the first substrate by etching. Applicant submits that the rejection mischaracterizes the teachings of the Yu reference. Yu discloses a wafer bonding process, which includes reducing the thickness of an original wafer substrate by mechanical polishing or chemical-mechanical polishing. *See, e.g.*, Yu Col.4:29-42. Yu does not disclose removing the substrate support. Because Yu's does not teach removing the substrate support, the buried silicon dioxide layer, would remain buried. Thus, one of skill in the art could not reasonably expect to successfully combine the teaching of Yu with Fonstad, which is relied upon for allegedly teaching etching of a buried silicon dioxide layer.

For at least these reasons, Applicant submits that Cohen, Yu and Fonstad are not properly combinable, and that the proposed combination does not teach or suggest all the elements recited in Applicant's claims. Reconsideration and withdrawal of the § 103(a) rejection over Cohen in view of Yu and Fonstad is therefore requested.

Claim 7 stands rejected under 35 U.S.C. § 103(a) over Cohen in view of Yu. Applicant disagrees, and submits that because claim 7 depends from claim 4 which depends from claim 1, claim 7 is allowable for at least the same reasons as claim 1.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

Please direct all correspondence to:

Corporate Patent Counsel
NXP Intellectual Property & Standards
1109 McKay Drive; Mail Stop SJ41
San Jose, CA 95131

CUSTOMER NO. 65913

By: 

Name: Robert J. Crawford

Reg. No.: 32,122

651-686-6633

(NXPS.392PA)